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A CENTURY OF INTERNATIONAL COMMERCE.

BY O. P. AUSTIN, CHIEF OF THE UNITED STATES BUREAU OF STATISTICS.

AMONG the wonderful developments of the nineteenth century, none is more marvellous than that of its commerce, which has increased more than a thousand per cent., while population was increasing less than one hundred and fifty per cent. This is due, in part, at least, to the fact that commerce has taken advantage of all the other wonderful developments with which the century has been crowded. Ever watchful, ever alert, and ever willing to hazard expenditure for the sake of prospective gain, it has fostered, developed, and adapted to its own use every discovery and invention which human energy, ingenuity and science have brought to the front. From the exchange of a few articles of luxury, carried on the backs of animals or in slow sailing vessels, it has expanded until it now interchanges the products of all lands and all climes, utilizing the swiftly moving railway train by land, and the scarcely less swift steamer by sea; and exchanges which occupied months at the opening of the century are now effected in days or weeks. Business messages then sent by carrier and sailing vessels took a year to reach the Orient and obtain a reply, while now but a few minutes or hours suffice for a similar service. Purchases of goods which then involved a transfer of cash or commodities in which weeks or months were consumed are now arranged by telegraph and banks in minutes or hours; while the transfer of the merchandise is a matter of hours or days. From the narrow frontage of land along the ocean, or along watercourses whose products could enter into the commerce of the then known world, the seaboard has been extended landward indefinitely by the railway, while the carrying capacity and speed of the ocean vessel have been correspondingly increased.

Instead of the pack animal which could carry but a few hundred pounds, or the wagon which could at the best transport a ton of merchandise, the railway car accepts as much as twenty teams could haul, and the engine hurries from twenty to thirty of these cars to the ocean, a thousand miles away, where the steamship calmly swallows the loads of twenty or thirty of these trains, and steams across the ocean at almost the same speed with which the merchandise was transported to the water's edge; while, before it has passed out of sight of land, the consignee on the other side of the globe has received notice of its departure, of the cargo it carries, and of the day and almost the hour at which he may expect its arrival.

Meantime, discovery and invention have multiplied the producing capacity of these greatly increased areas. The shuttle has supplied fabrics more cheaply than the cheapest hand labor could produce. Machinery and agricultural science have increased the products of the soil and transformed into merchandise that which was formerly refuse. Science has explored the earth and brought forth the precious and industrial metals, while invention has vied with art in transforming these products into articles which have become necessities of life and which have in turn contributed to the productiveness of the human race in all climes and conditions, thus multiplying commerce as well as production.

Thus, all the great developments of this wonderful century have combined to aid commerce, and articles which, at its beginning, were luxuries enjoyed only by the rich are now considered necessities by the masses. The natural products of the tropics have become the necessities of the temperate zone, and the manufactures of the temperate zone are demanded for daily life in the tropics. The grain-producing areas of the newer countries contribute to the food supply of the Old World, and take in exchange the products of its work shops; and the Orient yields its silks, teas and spices in exchange for our foodstuffs, machinery, and manufactures. Meantime, Finance, with its consummate art of balancing commodity against commodity and exchange against exchange, sits aloft and with golden reins skilfully guides the transactions which steam and electricity thus make possible, balancing the sales of one country against the purchases of another, weighing the value of this and measuring the usefulness of that, bringing order out of what appears endless confusion and

hopeless disorder, and by its skilful, complex and silent machinery making possible this enormous exchange of commodities with the transfer of the smallest possible proportion of circulating medium.

To measure accurately the commerce of the world, even in this day of improved business conditions, when the gathering of statistics has become a science and measures of value are reduced to a common denominator (gold), is difficult. That such attempts must have been much more difficult a century ago is so apparent that the fact need scarcely be mentioned as an apology for the use of estimates in regard to some portion of the earlier commerce of the century. Indeed, the fact that this method is still necessary with reference to certain remote spots in the commercial world shows how large a proportion of the statements of the world's commerce in the earlier years of the century must have been estimates, in many cases even conjecture. Yet there is no better method of reaching conclusions with regard to the early commerce of the century than to accept the estimates made by thoughtful men who had given years—lifetimes indeed—to the study of the subject; and, in this attempt to contrast conditions at the close of the century with those at its beginning, these estimates have been accepted as the best and, in fact, the only means of approximating the movement of merchandise between nations and grand divisions in those days when Governments and trade organizations and financial interests were but beginning to realize the importance of comprehensive and accurate statements upon this subject. The interchange of commodities throughout the commercial world at the beginning of the century is estimated at \$1,500,000,000 in value, and at the end of the century seems likely to be fully \$20,000,000,000. Meantime, the population, which is estimated by Malte-Brun at 640,000,000 in 1804, is now estimated in round terms at about 1,500,000,000, the increase in population having thus been 135 per cent., while the increase in commerce has been 1,233 per cent. While these statements of the commerce of the earlier years of the century are necessarily estimates in many cases, the fact that the Oriental countries had little commercial intercourse with the outside world, or even with one another, and that the chief commerce of the world was carried on by a few nations whose transactions in these lines could be measured with a fair degree of accuracy, seems to justify an acceptance of these statements as, probably, fairly accurate.

An attempt to trace the commerce of the century by decades is even more difficult, because the occasional and semi-occasional estimates, especially those made of population, do not in all cases fall upon the year ending a decade—a circumstance which creates the further necessity of making new estimates for the decennial periods based upon those actually made by experts at the years nearest to those dates. The estimates of population made during the century are those of Malte-Brun, Balbi, Michelet, Behm-Wagner, and Levasseur; and, accepting these authorities as presenting the best obtainable guide, and the estimates made by Kaier, Palgrave, Mulhall and Keltie of the commerce by decades, it is practicable, at least, to approach the average commerce, *per capita*, of the world at decennial periods during the century. This calculation gives the average *per capita* commerce, combining imports and exports to obtain the total commerce, at \$2.31 *per capita* in 1800, \$2.34 in 1830, \$3.76 in 1850, \$6.01 in 1860, \$8.14 in 1870, \$10.26 in 1880, \$11.84 in 1890, and \$13.27 in 1899.

What has caused this wonderful increase in the world's interchange of commodities, by which the commerce for each individual in the world is now practically six times as much as it was a hundred years ago, if we accept these estimates made by the most distinguished experts of the century? One need not go far to find an answer to this inquiry. Increased areas of production, increased facilities for transporting the products of different sections and climes, increased power of communication between men in various parts of the world, and, coupled with these, the great underlying principle of specialization of labor and products have led to this wonderful development of interchange among nations and peoples, by which articles most readily produced in one part of the world are exchanged for those most readily produced in another part. The great fertile plains of North America, South America, Australia and Russia have become the world's producers of grain and provisions, and are increasing their supplies of the textiles and their supplies of the foodstuffs required by all the world in manufacturing or for daily consumption; while the Orient stands ready with its silks and teas, and Africa tenders its gold and diamonds and ivory and native tropical products, all of which articles are required by the great manufacturing centres of the United States and Europe,

which furnish in exchange their manufactures of cotton, wool, silk, wood, iron and steel.

Thus commerce is constantly increasing its volume by its own activity. The machinery produced by the manufacturing section enables one man in the great grain fields of America to produce as much as a dozen or a score could produce by old methods at the beginning of the century or even later. The machinery of the factory enables a single individual to multiply many times his power of producing the articles required by his fellowmen. Exploration, colonization and investment of capital have greatly increased the producing area of the tropical section of the world. Added to all these, and making practicable the interchange of articles whose production is thus so enormously increased, is the increased power of transportation, communication, and financial adjustment which the second half of the century has developed.

Five great causes enter into, and combine to create, the wonderful development of the century's commerce. They may be stated in five words: steam, electricity, invention, finance, peace. The effect upon commerce of the use of steam as a motive power can scarcely be realized, until the progress of its development is compared with the progress of commerce. Then it is seen that the marked advance in the interchange of commodities was simultaneous with the development of the steamship and railway, and that the growth of the one was coincident with that of the other. The application of steam to transportation of merchandise by rail began in England in 1825, and in the United States in 1830, the number of miles of railway in the world in 1830 being about 200. In that year, the world's commerce, according to the best estimates obtainable, was \$1,981,000,000 as against \$1,659,000,000 in 1820, an increase in the decade of barely seventeen per cent., while in the preceding decades of the century the increase had been even less. By 1840, railways had increased to 5,420 miles, and commerce had increased to \$2,789,000,000, an increase of forty per cent. From 1840 to 1850, railways increased to 23,960 miles, and commerce had increased to \$4,049,000,000, a gain of forty-five per cent. By 1860, the railways had increased to 67,350 miles and commerce to \$7,246,000,000, an increase of seventy-nine per cent. By 1870, the railroads had increased to 139,860 miles and commerce to \$10,663,000,000; by 1880, the railroads had increased to 224,900 miles and commerce to \$14,761,000,000;

by 1890, the lines of railroad amounted to 390,000 miles and commerce to \$17,519,000,000, and, in 1898, the railroad lines aggregated 442,200 miles, and commerce \$19,915,000,000. A single instance will indicate the development which the railroad gives to the commerce of a country. India, with three hundred millions of population and 22,000 miles of railway, has seen her commerce increase nearly sixty per cent. in the past twenty-five years, while that of China, with four hundred millions of people, but no railways, has increased but about thirty per cent. in that time.

In the meanwhile steam had also revolutionized the carrying trade on the ocean. The first steamship crossed the ocean in 1819, and the total steam tonnage afloat in 1820 is estimated at 20,000 tons, against 5,814,000 of sail tonnage. By 1840, steam tonnage had increased to 368,000, while sail had grown to 9,012,000; by 1860, steam had reached 1,710,000, while sail was 14,890,000; by 1870, steam tonnage was 3,040,000, and sail had dropped to 13,000,000; by 1880, steam had become 5,880,000, and sail 14,400,000; by 1890, steam had reached 9,040,000, and sail had dropped to 12,640,000; and, in 1898, the steam tonnage was estimated at 13,045,000, and the sail tonnage at 11,045,000. The rapidity of growth of steam transportation, however, can only be realized when it is remembered that the steam vessel, by reason of its superior speed, size and ability to cope with all kinds of weather, is able to make four times as many voyages in a year as a sailing vessel, and that, in comparing the steam tonnage of the late decades with the sail tonnage of the earlier ones, the former must be multiplied by four to give it a proper comparison with the unit of sail tonnage. Reducing the steam tonnage to that of the standard of measurement at the beginning of the century, we find that the carrying power of vessels on the ocean had increased from 4,026,000 tons in 1800 to 10,482,000 in 1840, 21,730,000 in 1860, 37,900,000 in 1880, 48,800,000 in 1890, and 63,225,000 in 1898-9, of which last enormous total but 11,450,000 was sailing tonnage. Not only has greater carrying power come on land and sea, but with it increased speed and safety. A century ago the voyage to Europe occupied over a month, and was a cause for constant anxiety as to the life of those travelling and the cargo carried by the vessel; now, it is a holiday excursion of five days, in which there is no more thought of danger than on the cycle path or on the elevated railway. News of the West India hur-

ricane in 1818 reached the United States full thirty days after its occurrence, while Havana is to-day less than forty-eight hours from New York. The first vessel from New York to China occupied fifteen months on its round trip, and a voyage to the Orient, before the introduction of steam, occupied from eight to twelve months for the round trip, while now it can be accomplished both ways in a little over one month. Not only have recent years brought increased speed and facility in the moving of commerce, but, with that, increased safety, thus reducing the danger of loss of both life and property; while, in the matter of cost, the reduction has been enormous, many articles which then could not possibly bear the cost of transportation, now forming an important part of the world's commerce. Even in sailing vessels, which still perform about one-fourth of the world's sea transportation, steam is being utilized to perform many duties formerly accomplished by hand-power, such as the hoisting of heavy sails, the steering of the vessels, and the handling of cargoes; and thus, as the size of the sailing vessels is increased, the number of men required to manage them is reduced.

Still another influence which steam has given to commerce is the resultant increase in the quantity of goods offered for transportation. The great areas far removed from water transportation could never have been able to contribute to the world's supply of breadstuffs without the railway to transport their products to the water's edge, and the capacity of men for production of foodstuffs or manufactures, which form the bulk of the world's commerce, has been multiplied by the aid of steam in the workshop, and even on the great farms, where steam ploughs, steam wagons and steam threshers increase the producing power of man, and reduce the cost of the product which he sends around the world for daily consumption by millions who could not have afforded its use in the early years of the century.

Electricity, whose use in behalf of commerce was nearly contemporaneous with steam, has also performed an important part in increasing the activity and volume of commerce. The merchant who desired to send a cargo across the ocean or to the other side of the globe did so formerly at great risk as to prices, or else after long correspondence and vexatious delays. Now, not only the dealer in the cities, but the very farmer who grows the grain, or the workman who produces the iron and steel, knows this even-

ing what was its price in the markets of London and other parts of the world this morning. The merchant who desires to sell in Europe may contract his goods before shipping, and those who would make purchases in the Orient or the tropics can give their orders to-day, with the confidence that the goods will start to-morrow and reach them at a fixed date in time for the markets at their most favorable season. The growth of the telegraph and ocean cable has, like that of the railway and steamship, been contemporaneous with the growth of commerce. The first telegraph for commercial purposes was constructed in 1844, and so quickly did its influence become apparent that several thousand miles were in existence by 1850, while by 1860 the total had reached nearly 100,000 miles, by 1870 280,000 miles, by 1880 440,000 miles, by 1890 768,000 miles, and to-day the total reaches a million miles. Submarine cables, by which the international commerce is guided and multiplied, date from 1851, in which year twenty-five miles were put into operation across the English Channel. By 1860 the total length of successful lines was about 1,500 miles, though one cable laid across the Atlantic and another through the Red and Arabian Seas, meantime, had worked long enough to prove the practicability of the enterprise. By 1870, the submarine cables in operation amounted to about 15,000 miles; by 1880, to about 50,000 miles; by 1890, to 132,000 miles, and by 1898, to 170,000 miles, the number of messages transmitted on them being six millions a year, while those by the land telegraphs are estimated at one million per day, the greater proportion of both being in the service of commerce.

Invention has also contributed largely to the development of commerce, both directly and indirectly. What share it has had in that wonderful growth can scarcely be estimated; but, when we consider to what an extent the development of manufactures, as well as of agriculture, has been the result of labor-saving machinery and ingenious devices of men, it is apparent that to invention is due much, very much, of the enormous increase of production, and consequently the increase of exchange from section to section and from continent to continent. The cotton gin, which had but begun to make itself felt at the beginning of the century, the reaping and threshing machines, by which labor of grain producing is greatly reduced, the application of machinery to mining operations and the handling of the product of the mines, the

engines—those powerful and intricate machines—which transport the merchandise to the seaboard, and the railways on which they run, the steamships, the screw propeller, the iron and steel vessels and the thousands of articles from the factory which form an important part of the cargoes which they carry—all these are the inventions of the century, and all have contributed greatly to the producing and transporting power of man, and consequently to the multiplication of the commodities which he produces and exchanges.

Finance and financiers have contributed enormously to the growth of the commerce of the century. The gold discoveries in California and Australia, and later in other parts of the world, have greatly increased the volume of the circulating medium and encouraged the creation of a single and well defined standard of value, so that the merchant may make his sales and purchases with an assurance that payments will be made in a measure of value acceptable to the whole world, and losses and uncertainty of traffic thus avoided. The supply of this precious metal has increased enormously during the century. Chevalier estimated that the amount of gold in Europe in 1492 was but \$60,000,000. From that time to the beginning of the century, the average gold production was about eight millions a year; from 1800 to 1850, about 15 millions a year; and, since that date, it has ranged steadily upward, until it has reached over 300 millions a year, thus multiplying many times the stock of the standard metal of the world. The result of this is that 95 per cent. of the commerce of the world is now carried on between nations having a fixed and well regulated currency, with gold as the standard. Add to this fact the developments of the financial and credit systems, by which sums due in one part of the world are balanced against those due in another part, and by the use of simple pieces of paper the transportation of any considerable sums of money from place to place and country to country avoided, and it will be seen that Finance has had much to do with the century's commercial growth.

“Peace,” it has been said, “hath her victories no less renowned than war,” and peace has doubtless been an important factor in the wonderful development of the century's commerce. Nothing so quickly affects commerce as protracted warfare. This was particularly noticeable in the early part of the century, when the seizure of vessels, the impressment of seamen, and the general

destruction of commerce—not only the commerce of the enemy but, in many cases, that of any others against whom the slightest suspicion could be charged—practically suspended European commerce. In addition to this, the danger from pirates, which then constantly existed in certain parts of the ocean, was increased during war times. During the first fifteen years of the century, British, French, and finally all European vessels were practically prohibited from engaging in commerce by the Napoleonic wars, and the commerce of the world was largely thrown into the hands of our own shipping, until the war of 1812 and the events immediately preceding it. With the advance of the century, wars became less frequent, and of shorter duration when entered upon; while piracy has been generally suppressed, international laws for the protection of shipping enacted, and regulations established for the protection of those engaging in commerce. Not only has the actual loss from these causes been materially reduced, but the increased safety and absence of danger from losses have encouraged the increase in shipping and in commerce itself.

Many other causes might be named as contributing largely to the wonderful increase in commerce during the century. The area under cultivation in Europe, America, and Australia is estimated to have increased from 360 million to nearly 900 million acres; the coal mines have increased their output from 11 million to 600 million tons; pig-iron production has grown from 460,000 tons to 37 millions; cotton production has increased from 520 million to 5,900 million pounds; while the value of manufactures has increased perhaps a thousand fold in the hundred years. But all these are the results in a greater or less degree of the five great causes named above. Another cause which is frequently urged as contributing largely to the increase of commerce in the middle part of the century, is the repeal of navigation laws and excessive tariffs. While this is, doubtless, entitled to consideration, it is difficult to measure the share which it had in the development of that period. Steam, electricity, and gold discoveries were at that moment combining to stimulate commerce, while the fact that the growth of international commerce has been continued in the face of the return to protective duties by most of the commercial nations except Great Britain, adds to the difficulty of determining how far these important occurrences were factors in the growth of international trade of that time.

The following table indicates the growth of the commerce of the world during the century which is about to close:

THE WORLD'S COMMERCIAL DEVELOPMENT DURING THE NINETEENTH CENTURY.

Year.	Population.	Commerce.		Shipping.		Carrying Power.
		Aggregate.	Per Capita.	Sail.	Steam.	
1800.....	(a) 640,000,000	1,479,000,000	2.31	4,026,000	None	4,026,000
1820.....	(b) 780,000,000	1,659,000,000	2.13	5,814,000	20,000	5,894,000
1830.....	(b) 847,000,000	1,981,000,000	2.34	7,100,000	107,000	7,528,000
1840.....	(c) 950,000,000	2,789,000,000	2.93	9,012,000	368,000	10,482,000
1850.....	(c) 1,075,000,000	4,049,000,000	3.76	11,470,000	858,000	14,902,000
1860.....	(c) 1,205,000,000	7,246,000,000	6.01	14,890,000	1,710,000	21,730,000
1870.....	(d) 1,310,000,000	10,663,000,000	8.14	12,900,000	3,040,000	25,100,000
1880.....	(e) 1,439,000,000	14,761,000,000	10.26	14,400,000	5,880,000	37,900,000
1890.....	(f) 1,488,000,000	17,519,000,000	11.80	12,640,000	9,040,000	48,800,000
1898.....	1,500,000,000	19,915,000,000	13.27	11,045,000	13,045,000	63,200,000
Area.						
Year.	Railways (g).	Telegraphs.		Cables.	Cultivated.	
		Miles.	Miles.		Miles.	Acres (g).
1800.....	None	None	None	None	360,000,000	
1820.....	None	None	None	None	402,000,000	
1830.....	210	None	None	None	.....
1840.....	5,420	None	None	None	492,000,000	
1850.....	23,960	5,000	25	.....	.....
1860.....	67,350	99,300	1,500	.....	583,000,000	
1870.....	139,860	281,000	15,000	.....	.....
1880.....	224,900	440,000	49,000	.....	749,000,000	
1890.....	390,000	767,800	132,000	.....	807,000,000	
1898.....	442,200	933,000	168,000	.....	861,000,000	
Gold Production of Decade ending with year (h).						
Year.	Cotton Production. Pounds (g).	Coal Production. Tons.		Pig Iron Production. Tons (g).	Dollars (h).	
		Tons.	.....		.....
1800.....	520,000,000	11,600,000	.....	460,000	128,464,000	
1820.....	630,000,000	17,200,000	.....	1,010,000	76,063,000	
1830.....	820,000,000	25,100,000	.....	1,585,000	94,419,000	
1840.....	1,310,000,000	44,800,000	.....	2,680,000	134,841,000	
1850.....	1,435,000,000	81,400,000	.....	4,422,000	363,923,000	
1860.....	2,551,000,000	142,300,000	.....	7,180,000	1,333,981,000	
1870.....	2,775,000,000	213,400,000	.....	11,910,000	1,263,015,000	
1880.....	3,601,000,000	340,000,000	.....	18,140,000	1,150,814,000	
1890.....	5,600,000,000	466,000,000	.....	25,160,000	1,060,052,000	
1898.....	5,900,000,000	610,000,000	.....	37,150,000	1,950,000,000	

- (a) Malte-Brun's estimate for 1804.
- (b) Based on Balbi's estimate for 1828.
- (c) Based on Michelet's estimate for 1845.
- (d) Based on Behm-Wagner estimate for 1874.
- (e) Levassieur's estimate for 1878.
- (f) Royal Geographical Society estimate.
- (g) Mulhall's estimates, except 1830, 1890 and 1898.
- (h) Saetbeer's estimates prior to 1860.

To discuss the part which the various nations have had in this commerce, the relations of imports to exports, or the classes of articles exchanged between the great sections of the globe, would carry this study beyond reasonable limits. In all of the above statements, the term "commerce" has covered both exports and imports, and has included the exchange of merchandise between nation and nation throughout the entire world, wherever records

of such commerce are attainable. And while it is quite probable that the development of business and statistical methods throughout the world has made it practicable for the inquirer of to-day to bring into the grand total the commerce of some countries whose business could only be estimated in the earlier part of the period, it is also likely that the reduction in prices of the merchandise whose value only is stated fully offsets any increase in the closeness with which the field has been gleaned, and that the figures represent with a fair degree of accuracy the relative quantity of merchandise moved at the various periods under discussion. While the fact that the exports of each nation always become the imports of some other nation, would suggest that export and import ought to balance each other in the grand aggregate, it is found that they do not, since the freight, insurance, and brokerage are in most cases added to the export price in naming the value of the goods where they become an import, thus making the stated value of the world's import usually from five to ten per cent. in excess of the stated value of the exports.

The United States has performed well her part in the century's development of the world's commerce. While the total commerce of the world has grown from \$1,479,000,000 to \$19,915,000,000, that of the United States has increased from \$162,000,000 to over \$2,000,000,000, while the ratio of increase in exports of domestic merchandise is even much greater. Indeed, the figures of our commerce for the first year and decade of the century are quite misleading for comparative purposes, as they include large quantities of foreign goods brought to our ports by our vessels and merely declared as entries, while in fact they in many cases never left shipboard and only entered nominally into our commerce, because of their being carried by our vessels. This was due to the fact that European nations which had very rigorous laws prohibiting the carrying by foreign vessels of commerce between their own ports and colonies, were willing to suspend the action of these laws while the war prevented them from doing their own carrying trade. The result of this was that, during the first decade of the century, our reported exports of foreign goods amounted to as much as those of domestic products, and in some years actually exceeded them, while now they only amount to about two per cent. of our total exports. Comparing the commerce in domestic goods during 1899 with that of 1800, it is

found that the percentage of increase is very much greater than that shown by the world's total commerce.

In general, it may be said of our commerce of 1900, that the imports are about ten times as much as in 1800, and the exports twenty times as much as the nominal figure of 1800.

What of the coming century? Can its commerce, and all those conveniences of traffic and intercourse which go to stimulate and create commerce, show such a marvellous growth as that of the century about to end? It seems almost impossible, yet no more impossible than the growth which has actually occurred during this century would have appeared had it been predicted at its beginning. Aërial navigation may, long before the end of another century, aid in the transportation of men and mails and the lighter articles of commerce to areas not supplied with other means of transportation; a similar service may be performed between great distributing centres by huge pneumatic tubes, a mere development of the system which now prevails for shorter distances in great cities; wireless telegraphy will communicate with all sections of the world; electricity will transfer to convenient points the power created by countless waterfalls now inaccessible for manufacturing purposes; steamships will develop their carrying powers and multiply communications between continents and great trading centres; a ship canal will connect the waters of the Atlantic and Pacific; and vessels circumnavigating the globe in the interests of commerce may take further advantage of currents of air and water which move ever westward as the earth revolves ever toward the east; other ship canals will connect our Great Lakes with the ocean, and steamships from Europe and the Mediterranean countries and the Orient will land their merchandise at the docks of Chicago and Duluth, and the other great commercial cities of our inland seas; a great railway system will stretch from South America to Bering Straits, thence down the eastern coast of Siberia, through China, Siam, Burmah, across India, Persia, Arabia, past the pyramids of Egypt to the westernmost point of Africa, where only 1,600 miles of ocean will intervene to prevent the complete encircling of the earth with a belt of steel, whose branches will penetrate to every habitable part of every continent, and place men of all climes and all nations and all continents in constant communication with each other and facilitate the interchange of commodities between them.

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